A Sustainable Future with E-Mobility: Concepts, Challenges, and Implementations

Part of the Advances in Mechatronics and Mechanical Engineering Book Series

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Description:

Integrating electric vehicles (EVs) into power distribution systems presents significant challenges, particularly concerning power source dependability and grid stability. The distribution system, a critical element of the power system, is susceptible to failures and power outages exacerbated by the extensive adoption of EVs. Additionally, managing the administration, monitoring, and control of power systems in the context of EV integration is a complex and daunting task for energy experts.

A Sustainable Future with E-Mobility: Concepts, Challenges, and Implementations offers a comprehensive solution to these challenges. It explores infrastructure frameworks, planning strategies, control strategies, and software applications for integrating EVs with power distribution systems, focusing on innovative grid developments. By providing insights into architectural reconfiguration, restoration strategies, power quality control, and regulatory aspects, the book equips readers with the knowledge needed to achieve a secure, resilient, and efficient integration of EVs into distribution networks.

This book is a valuable resource for a diverse audience, including students, researchers, academicians, policymakers, and industry experts. It demystifies the complexities of e-mobility, offers economic benefits, and provides standards for interoperability. Bridging the gap between theory and practice empowers stakeholders to make informed decisions, develop effective frameworks, and promote sustainable energy systems.

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